



Nickel Phosphite Grown on Nickel Foam Hydrothermally for Water Oxidation

Diao, Fangyuan; Zhang, Jingdong

Publication date:
2019

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Diao, F., & Zhang, J. (2019). *Nickel Phosphite Grown on Nickel Foam Hydrothermally for Water Oxidation*. Abstract from 2019 Inorganic Graduate Student Seminar, Odense, Denmark.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Nickel Phosphite Grown on Nickel Foam Hydrothermally for Water Oxidation

Fangyuan Diao,^a Jingdong Zhang^a

^a Department of Chemistry, Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark

E-mail: fandia@kemi.dtu.dk

Electrochemical water splitting into hydrogen and oxygen is one of the most promising ways to produce clean hydrogen fuel using electricity generated from renewable energy sources such as solar energy and wind power. The overall water splitting efficiency is largely limited by the sluggish oxygen evolution reaction (OER). Nickel-based electrocatalysts have the potential to replace traditional ruthenium and iridium-based precious metal catalysts. Nickel phosphite ($\text{Ni}_{11}(\text{HPO}_3)_8(\text{OH})_6$) is one kind of phosphorus-based inorganic materials which can be used as the electrocatalyst in OER¹. Here, we successfully use microwave hydrothermal method to grow nickel phosphite on nickel foam. The effect of reaction time on the morphology and electrocatalytic activity is studied. Results show that nickel phosphite on the nickel foam has good catalytic activity toward OER in alkaline electrolyte (1M KOH).

Reference

1. Menezes, P. W. *et al.* A structurally versatile nickel phosphite acting as a robust bifunctional electrocatalyst for overall water splitting. *Energy Environ. Sci.* **11**, 1287–1298 (2018).